APPENDIX 5

Transportation Plans

Appendix 5A

Alternative A – Transportation Plan

Alternative A – Transportation Plan

The Transportation Plan for Alternative A is the same as the Transportation Plan in the PAPA ROD (BLM, 2000b).

Appendix 5B

Alternative B – Transportation Plan

Alternative B – Transportation Plan

Prepared by
Ultra Resources, Inc.
Shell Exploration & Production Company
Questar Market Resources

Purpose

Questar Market Resources (Questar), Shell Exploration & Production Company (Shell), and Ultra Resources, Inc. (Ultra), hereinafter collectively referred to as "Proponents", propose this Transportation Plan to supplement the 2000 PAPA ROD Transportation Plan (TP 2000) as provided below.

The purpose of this plan is to incorporate measures that: 1) reduce surface use to maintain habitat function and minimize habitat fragmentation; 2) reduce human activity to lessen disturbance to wildlife and reduce impacts to community, county and state infrastructure; and, 3) reduce air emissions through consolidation of locations and associated development and production activities.

Proponents propose to accomplish these goals through reduction of the number of pads through multi-well pad development, directional drilling, and simultaneous operations; concentration of pad locations into three operation areas; reduction of rig moves on and off pads; use of liquids gathering systems and centralized facilities where feasible to reduce truck traffic and the number of production tanks and associated VOC's; management of traffic through busing and scheduling during seasonal stipulation periods; and the increased use of computer assisted operations (CAO) reducing trips and traffic during production. Proponents' proposal will also result in a decrease of the expected period for development in concentrated areas under seasonal restrictions by up to 50 percent.

Scope

This plan applies to roads and the transportation of gas, condensate, or water via pipelines and as outlined in the TP 2000. The plan includes assumptions, mitigation measures, and guidelines. Relevant requirements for road construction or reconstruction and the development of agreements for surface use, rights-of-ways (ROW), and maintenance will be addressed and quantified in the Technical Support Document (TSD) submitted to BLM within 1 year of the release of the SEIS ROD and will be updated annually.

Pipelines / flowlines will be installed either within the road easement and / or within existing pipeline corridors to the extent feasible. Pipelines generally will be located adjacent to roads to reduce new surface disturbance. In instances where paralleling roads and lines lead to increased environmental and / or safety impacts, pipelines may be located along alternative routes. These alternative routes will be evaluated and sited to minimize environmental impacts.

Multi-well pads utilizing directional drilling may accommodate use of multiple drilling rigs operating year round as well as simultaneous drilling, completion, construction, and production operations. Concentrating operational activity into specific multi-section areas will lessen road development PAPA-wide during a given time period leaving large blocks of undeveloped acreage available to wildlife and livestock.

Proponent Committed Measures

1. Proponents will use public and existing roads as much as possible to lessen new surface disturbance and habitat fragmentation. New road construction under the concentrated development, multi-well pad proposal would be reduced by at least 70% PAPA-wide as compared to non-concentrated, single-well pad development. Per section, this equates to up to 1.16 miles or about 12 acres (roadway, flowline easement).

2. When siting new roads, Proponents will work with the Bureau of Land Management (BLM) to ensure this is done in the most efficient and environmental effective way. Proponents will continue use and development of ROW Surface Use Plans.

3. Annual road planning, development, maintenance, and other issues and concerns will be incorporated into a Technical Support Document (TSD), as will detailed information (including maps) on existing roads/routes and natural obstacles. The TSD and associated maps, as well as proposed project activities; operator construction and maintenance responsibilities; and road-specific dust abatement, construction, and surfacing requirements, will be updated annually or as necessary and submitted to the BLM.

4. Proponents will not move drill rigs to and from well pads in crucial big game winter range after November 15 and before May 1 outside of the agreed upon concentrated activity areas. Rigs within the concentrated areas will normally move onto a pad and stay until all scheduled wells for that rig are drilled as feasible. Delineation wells as discussed in Chapter 2 will be determined in the annual plans in consultation with BLM and WG&FD.

5. Proponents will deliver and store equipment and bulk supplies on or near the well pads prior to seasonal stipulation periods to the maximum extent feasible to reduce traffic and human disturbance on wildlife.

6. Proponents are committed to utilizing liquids gathering systems and centralized facilities where feasible. After the construction phase and where appropriate, liquids gathering systems and centralized facilities will significantly reduce tanker truck traffic by up to 475 truck trips per day during peak production.

7. Between November 15 and April 30 in a given year in crucial big game winter range and sage grouse winter concentration areas, Proponents will make reasonable effort to bus rig crews from appropriate vehicle staging areas to minimize commuting traffic. Proponents will not tolerate workers who miss the bus and drive personal vehicles to the pads during this time period.

8. Proponents will each coordinate the transportation routes and scheduling of service contractors to minimize the amount of traffic associated with year round development.

9. Proponents will fund hosted workers to the BLM Pinedale Office to operate an access station from November 15 through April 30 each year to monitor essential traffic to the pads. Proponents will determine in consultation with BLM how long the access station will be in place. Hosted workers would report to the BLM Pinedale Field Office. Traffic

data would be compiled to differentiate between essential activity and non-essential traffic. Proponents would use this information to adjust their practices, if needed, to reduce traffic. The access station would be open 24 hours a day, seven days a week. Proponents would fund signage appropriate to inform the public and industry of the access station and travel restrictions.

10. Where feasible, Proponents will utilize computer assisted remote monitoring of producing wells to reduce the need for daily site visits during the production phase.

11. Proponents will reclaim any road not required for routine operation and maintenance of producing wells or ancillary facilities as directed by the BLM, State Land Board, or private landowner. These roads would be blocked, recontoured, reclaimed, and revegetated by Proponents, as would disturbed areas associated with permanently abandoned pads.

12. As part of normal operational winter maintenance, Proponents will plow roads the minimum amount necessary to allow safe navigation. Plows would provide breaks in snow piled berms along the road margins (knockouts) in order to allow free movement of wildlife across roads.

13. Proponents will advise personally and/or by mail to all project-related personnel and vendors traffic activity restrictions and rules of conduct while on the PAPA. These will include, but are not limited to:
    a. No stopping to observe wildlife
    b. No harassment of wildlife
    c. No firearms
    d. No pets outside a vehicle

14. Proponents will provide a laminated sheet entitled “Code of Conduct during Seasonal Stipulation Periods” that will be required to be carried in each company vehicle. The sheets will also provide instruction on the types of human activity that create stress in wildlife.

15. Proponents would observe speed limits within the PAPA and will encourage service contractors and vendors to do the same. This will be included in the “Code of Conduct during Seasonal Stipulation Periods”.

16. Proponents will implement voluntary fugitive dust control measures on primary access roads and heavily used resource roads.

17. Proponents will instruct personnel on behaviors appropriate for minimizing disturbance to wildlife consistent with current documents on such conduct and developed in consultation with BLM, WG&FD or other wildlife experts.

18. In consultation with BLM and WG&FD, Proponents will install gates as appropriate and supply other needed material in crucial winter range and sage grouse concentration areas to encourage compliance with traffic restrictions. After construction, the BLM would maintain the gates. Gate keys would be managed by the BLM. Gate closures would be consistent with traffic restrictions. Proponents would assist BLM with signage on or near the gate explaining the traffic restrictions.

Estimated Traffic Volumes – Drilling

Following are the anticipated traffic and activity associated with drilling in a concentrated area on a consolidated multi-well pad:

1. Each rig will have the following personnel on location 24 hours per day. Each person will have a vehicle, but would typically not leave location on most days.
    a. Drilling Foreman
    b. Toolpusher
    c. Mud Engineer
    d. Directional Driller, when needed
    e. MWD Technician, when needed
    f. Mud Logger
    g. Top Drive Operator

2. Each rig will typically have two six-man crews, each working a 12-hour shift. Shift changes are generally at 6:00 a.m. and 6:00 p.m.

3. Rig traffic. The estimated traffic required for each well for the 45 to 55 days it takes to drill the well has been estimated as follows:
    a. Fuel Tankers – 17
    b. General Hauling – 88
    c. Mud and Waste Haulers – 44
    d. Water Trucks – 49, unless on-site water wells are permitted
    e. Down hole tool delivery and Misc. Supplies – 70
    f. Construction, management, roustabouts and services – 284
    g. Cement, barite, and mud chemicals – 48
    h. Rig moves on / off pad – 70
    i. Skids – 6

This traffic estimate includes approximately 299 roundtrips by heavy trucks and 301 roundtrips by pickup truck or autos per well excluding the rig moves on / off pad and skids. The trip total reflects a decrease in supply traffic on multi-well pads at approximately 33 percent less than normal traffic to single wells on separate pads.

Estimated Traffic Volumes – Completions

Following are the anticipated traffic and activity associated with completions in a concentrated area on a consolidated multi-well pad. Estimates are per well and will be reduced with concurrent multiple well completions.

a. Proppant Hauling		53
b. Frac Fleet	Semi Transport	40
	Light Trucks	53
c. Water	Delivery	35
	Hauling	130
d. Wireline- Perforating and Logging		10
e. Coiled Tubing Drillout		28
f. Other semis/transport		19
g. Other light truck/pickup		120
	TOTAL	488

Estimated Traffic Volumes – Production

Where feasible, upon gathering systems being fully operational and in combination with computer assisted operations being utilized, Proponents anticipate 1 roundtrip per day associated with pad production.

Estimated Traffic Volumes – Pad and Road Construction

Proponents expect to construct / expand pads and roads primarily outside of winter conditions.

Anticipated traffic to construct / expand one pad is 708 roundtrips which include heavy and light trucks, dump trucks, and water trucks.

Anticipated traffic to construct one access road is 146 roundtrips which include heavy and light trucks, dump trucks, and water trucks.

Emergency Vehicle Traffic Volumes

Emergency vehicle traffic for emergencies cannot be predicted or quantified, but are noted they will occur even as Proponents continue to enhance the safety of their contractors, service providers, and themselves in their operations.

Appendix 5C

Alternative C – Transportation Plan

Alternative C – Transportation Plan

If Alternative C is selected in the ROD, the Alternative B Transportation Plan would be modified as appropriate.

Appendix 5D

Alternative D – Transportation Plan

Note: The Proponents' original Transportation Plan's committed mitigation for their Proposed Action (Alternative B) is as submitted. To accommodate Alternative D, the Transportation Plan is revised to delete references to concentrated pad locations in consolidated areas and replace them with references appropriate to development area terminology.

Please see p. D-2, third paragraph, first sentence; p. D-3, number 1, second sentence and number 4, first and second sentences; and, p. D-5, under "Estimated Traffic Volumes – Drilling", first sentence and under "Estimated Traffic Volumes – Completions", first sentence.

Alternative D – Transportation Plan

Purpose

Ultra Resources, Inc. (Ultra), Shell Exploration & Production Company (Shell) and Questar Market Resources (Questar), hereinafter collectively referred to as "Proponents", propose this Transportation Plan to supplement the 2000 PAPA ROD Transportation Plan (TP 2000) as provided below.

The purpose of this plan is to incorporate measures that: 1) reduce surface use to maintain habitat function and minimize habitat fragmentation; 2) reduce human activity to lessen disturbance to wildlife and reduce impacts to community, county and state infrastructure; and, 3) reduce air emissions through consolidation of locations and associated development and production activities.

Proponents propose to accomplish these goals by reducing the number of well pads through multi-well pad development, directional drilling, and simultaneous operations; pad locations in five development areas; reducing rig moves on and off pads; installing liquids gathering systems and centralized facilities where feasible to reduce truck traffic and the number of production tanks and associated VOC's; managing traffic through busing and scheduling during seasonal stipulation periods; and increasing the use of computer assisted operations (CAO) to reduce trips and traffic during production. Proponents' proposal will also result in a decrease in the expected development period over development under seasonal restrictions by up to 50 percent.

Scope

This plan applies to roads and the transportation of gas, condensate, and water via pipelines and as outlined in the TP 2000. The plan includes assumptions, mitigation measures, and guidelines. Relevant requirements for road construction or reconstruction and the development of agreements for surface use, rights-of-ways (ROW), and maintenance will be addressed and quantified in the Technical Support Document (TSD) to be submitted to BLM within one year of the release of the SEIS ROD and which will be updated annually.

Pipelines / flowlines will be installed either within the road easement and / or within existing pipeline corridors to the extent feasible. Pipelines generally will be located adjacent to roads to reduce new surface disturbance. In instances where paralleling roads and existing pipelines would lead to increased environmental and / or safety impacts, pipelines may be located along alternative routes. These alternative routes will be evaluated and sited to minimize environmental impacts.

Multi-well pads may accommodate use of multiple drilling rigs utilizing direction drilling and operating year round as well as simultaneous drilling, completion, construction, and production operations. Concentrating operational activity within specific multi-section areas will lessen road development PAPA-wide during a given time period leaving large blocks of undeveloped acreage available to wildlife and livestock.

Proponent Committed Measures

1. Proponents will use public and existing roads as much as possible to lessen new surface disturbance and habitat fragmentation. New road construction under the multi-well pad proposal would be reduced by at least 70% PAPA-wide as compared to single-well pad development. Per section, this equates to up to 1.16 miles or about 12 acres (roadway, flowline easement).

2. When siting new roads, Proponents will work with the Bureau of Land Management (BLM) to ensure placement and construction is done in the most efficient and environmentally effective way. Proponents will continue use and development of ROW Surface Use Plans.

3. Annual road planning, development, maintenance, and other issues and concerns will be incorporated into the TSD, as will detailed information (including maps) on existing roads/routes and natural obstacles. The TSD and associated maps, as well as proposed project activities, operator construction and maintenance responsibilities, and road-specific dust abatement, construction, and surfacing requirements, will be updated annually or as necessary and submitted to the BLM.

4. Proponents will not move drill rigs to and from well pads outside of the agreed upon activity areas in crucial big game winter range after November 15 and before May 1. Rigs will normally move onto a pad and stay until all scheduled wells for that rig are drilled, as feasible. Delineation wells as discussed in Chapter 2 will be determined in the annual plans in consultation with BLM and Wyoming Game and Fish Department (WG&FD).

5. Proponents will deliver and store equipment and bulk supplies on well pads prior to seasonal stipulation periods to the extent feasible to reduce traffic and human disturbance on wildlife.

6. Proponents are committed to utilizing liquids gathering systems and centralized facilities where feasible. The liquids gathering systems and centralized facilities will significantly reduce tanker truck traffic by up to 475 truck trips per day during peak production.

7. In crucial big game winter range and sage grouse winter concentration areas, Proponents will make reasonable effort to bus drilling rig crews between November 15 and April 30 from appropriate vehicle staging areas to minimize commuting traffic. Proponents will not tolerate workers who miss the bus and drive personal vehicles to the pads during this time period.

8. Proponents will coordinate the transportation routes and scheduling of service contractors to minimize the amount of traffic associated with year-round development.

9. Proponents will fund hosted workers within the BLM Pinedale Field Office to operate an access station annually from November 15 through April 30 to monitor traffic within crucial winter range areas. Proponents will determine in consultation with BLM how long the access station will be in place. Hosted workers would report to the BLM Pinedale Field Office. Traffic data would be compiled to differentiate between essential activity and non-essential traffic. Proponents would use this information to adjust their practices, and, if needed, to reduce traffic. The access station would operate 24 hours a

day, seven days a week. Proponents would fund appropriate signage to inform the public and industry of the access station and travel restrictions.

10. Where feasible, Proponents will utilize computer assisted remote monitoring of producing wells to reduce the number of site visits during the production phase.

11. Proponents will reclaim any road not required for routine operation and maintenance of producing wells or ancillary facilities as directed by the BLM, State Land Board, or private landowner. These roads would be blocked, recontoured, reclaimed, and revegetated by Proponents, as would disturbed areas associated with permanently abandoned pads.

12. As part of normal operational winter maintenance, Proponents will plow roads the minimum amount necessary to allow safe navigation. Plows would provide breaks in snow piled berms along the road margins (knockouts) in order to allow free movement of wildlife across roads.

13. Proponents will advise all project-related personnel and vendors either personally, by mail or by e-mail of all seasonal stipulation-related traffic activity restrictions and rules of conduct while on the PAPA. These will include, but are not limited to:
    a. No stopping to observe wildlife
    b. No harassment of wildlife
    c. No firearms
    d. No pets outside a vehicle
    e. Obey posted speed limits

14. Proponents will provide a laminated sheet entitled “Code of Conduct during Seasonal Stipulation Periods” that will be required to be carried in each company vehicle during seasonal stipulation periods. The sheets will provide instruction on the types of human activity that create stress in wildlife.

15. Proponents would observe speed limits within the PAPA and will encourage service contractors and vendors to do the same. This will be included in the “Code of Conduct during Seasonal Stipulation Periods.”

16. Proponents will implement voluntary fugitive dust control measures on primary access roads and heavily used resource roads.

17. Proponents will instruct personnel on behaviors appropriate for minimizing disturbance to wildlife consistent with current documents developed by BLM, WG&FD or other wildlife experts and which are provided to Proponents by BLM.

18. In consultation with BLM and WG&FD, Proponents will install gates as appropriate and supply other needed material in crucial winter range and sage grouse concentration areas to encourage compliance with traffic restrictions. After construction, the BLM would maintain the gates. Gate keys would be managed by the BLM. Gate closures would be consistent with traffic restrictions. Proponents would assist BLM with signage on or near the gate explaining the traffic restrictions.

Estimated Traffic Volumes – Drilling

Following are the anticipated traffic and activity associated with drilling on a consolidated multi-well pad:

1. Each rig will have the following personnel on location 24 hours per day. Each person will have a vehicle, but would typically not leave location on most days.
    a. Drilling Foreman
    b. Toolpusher
    c. Mud Engineer
    d. Directional Driller, when needed
    e. MWD Technician, when needed
    f. Mud Logger
    g. Top Drive Operator

2. Each rig will typically have two six-man crews, each working a 12-hour shift. Shift changes are generally at 6:00 a.m. and 6:00 p.m.

3. Rig traffic. The estimated traffic required for each well for the 45 to 55 days it takes to drill the well has been estimated as follows:
    a. Fuel Tankers – 17
    b. General Hauling – 88
    c. Mud and Waste Haulers – 44
    d. Water Trucks – 49, unless on-site water wells are permitted
    e. Down hole tool delivery and Misc. Supplies – 70
    f. Construction, management, roustabouts and services – 273
    g. Cement, barite, and mud chemicals – 48
    h. Rig moves on / off pad – 70
    i. Skids – 6
    j. Logging Truck – 3
    k. Casing Running – 4 x 2

This traffic estimate includes approximately 299 roundtrips by heavy trucks and 301 roundtrips by pickup truck or autos per well excluding the rig moves and skids. The trip total reflects a decrease in supply traffic on multi-well pads of approximately 33 percent less than normal traffic to single wells on separate pads.

Estimated Traffic Volumes – Completions

Following are the anticipated traffic and activities associated with completions on a multi-well pad. Estimates are per well and will be reduced with concurrent multiple well completions:

a. Light	120
b. Heavy	180
TOTAL	300

Estimated Traffic Volumes – Production

Where feasible, upon gathering systems being fully operational and in combination with utilization of computer assisted operations, Proponents anticipate one roundtrip per day associated with normal pad production operations.

Estimated Traffic Volumes – Pad and Road Construction

Proponents expect to construct / expand pads and roads primarily outside of winter conditions.

Anticipated traffic to construct / expand one pad is 708 roundtrips which includes heavy and light trucks, dump trucks, and water trucks.

Anticipated traffic to construct one access road is 146 roundtrips which includes heavy and light trucks, dump trucks, and water trucks.

Emergency Vehicle Traffic Volumes

Emergency vehicle traffic cannot be predicted or quantified, but it is noted emergencies may occur even as Proponents continue to enhance the safety of their employees, contractors, and service providers.

Appendix 5E

Alternative E – Transportation Plan

Alternative E – Transportation Plan

If Alternative E is selected in the ROD, the Transportation Plan from the PAPA ROD would be modified as appropriate.